8501 West Higgins Road
Suite 300
Chicago, IL 60631
Tel 773-693-3809
Fax 773-693-3823

October 29, 2007

Jena Sleboda
Remedial Project Manager
U.S. EPA - Superfund
77 West Jackson Blvd. (SR-6J)
Chicago, IL 60604

Subject: Main Site Pre-Design Work Plan
Former Celotex Site – 2800 South Sacramento Avenue, Chicago, Illinois

Dear Ms. Sleboda:

This Main Site Pre-Design Work Plan documents the procedures being proposed to evaluate certain subsurface conditions around the perimeter of the former Celotex Site (Main Site) located at 2800 South Sacramento Avenue in Chicago, Illinois. The proposed evaluation work will be performed to support remedial construction activity planning. This Pre-design Work Plan has been prepared on behalf of Honeywell International Inc. (Honeywell).

Pre-Design Scope

Evaluation Rationale

The primary objective of the proposed pre-design evaluation is to characterize the perimeter of the Main Site in support of cover construction design activities (Figure 1, Attachment 1). This characterization will focus on gathering geologic and geotechnical information on the shallow subsurface soils with analytical soil sampling conducted in select locations based on conditions encountered.

Implementation Approach

Procedures established in the Main Site Evaluation Work Plan (CH2M HILL, October 2006) will be utilized to guide field activities. A Health and Safety Plan Amendment (Attachment 2) and Quality Assurance Project Plan (QAPP) Addendum (Attachment 3) have been developed to address those activities that are unique to this pre-design evaluation. The current Main Site property owners will be contacted to arrange access for field activities planned for the two parcels. Once access has been arranged, the evaluation activities will be scheduled and conducted. As the first step, utility clearance encompassing the perimeter and side slope area will be conducted. Soil borings will not be advanced until the utility

locate has been completed. Following completion of the proposed borings, boring locations will be staked and surveyed. Specific components of the field evaluation are identified in the following subsections with proposed soil boring locations shown on Figure 1.

Geologic/Geotechical Evaluation

To evaluate the shallow, unsaturated subsurface soils around the perimeter of the Main Site, a track-mounted Geoprobe® or similar type unit will be used to advance soil borings to approximately 5 feet below ground surface (bgs). Soil borings around the approximately 4,600 foot perimeter will initially be advanced at 100-foot intervals (Figure 1).

The borings will be located at the toe of the side slopes (where present) and within the property fence line. Soil samples will be continuously logged and screened with a photoionization detector (PID) in 2-foot increments. The soils encountered will be generally described by the field technician using the Unified Soil Classification System (USCS).

Based on soil screening observations, if soil conditions at adjacent borings vary (e.g., significantly different geologic layers or thicknesses) or indicate potential impact (e.g., elevated PID readings, staining), additional soil borings will be advanced. The additional borings would be located between those with identified variability at a reduced spacing.

Soil samples will be collected for geotechnical testing at an estimated maximum of ten of the proposed soil boring locations. Selection of samples for testing will be based on soils encountered at each boring with samples collected of the primary soil types present around the site perimeter. Assuming shallow subsurface soils encountered at the borings are consistent, a maximum of one soil sample will be collected for geotechnical testing from each section of the site perimeter (Figure 1).

Geotechnical testing will consist of grain size (gradation) analysis and Atterberg limits (including moisture content) for each sample collected. In addition, a pocket penetrometer will be used to collect measurements for 2-foot soil intervals to evaluate consistency and approximate unconfined compressive strength of soils.

Following physical characterization and collection of geotechnical and/or and or analytical soil samples, the borings will be backfilled with the cuttings from the boreholes. Hydrated bentonite chips will be used to augment borehole backfill where needed.

Environmental/Analytical Evaluation

Soil borings around the site perimeter will be selected for analysis if elevated PID readings and/or visually impacted soil is encountered. If necessary, one sample depth per impacted boring would be analyzed for SVOCs, based on the site history.

Geotechnical samples, and environmental samples if required, will be tested or analyzed by an independent laboratory to meet the analytical methodology requirements identified in

the QAPP Addendum (Attachment 2). Quality assurance/quality control (QA/QC) samples will be collected as indicated and at the frequency identified in the QAPP Addendum. Data will be reviewed or validated to ensure it meets established quality parameters and satisfies project objectives.

Report

Following completion of the field activities, the collected information will be evaluated, the testing/analytical results reviewed/validated, and a report developed and submitted to document the pre-design findings. The report will include any implications the findings may have on subsequently planned actions.

Please contact me at 773.693.3800 ext. 253 with any questions regarding this Pre-design Work Plan.

Sincerely,

CH2M HILL

Joel D. Wipf
Project Manager

CHI/MS_Pre-Design_WorkPlan_Final_102907.DOC
c: Karen Peaceman/USEPA Region 5
Chuck Geadelmann/Honeywell
Dan Cantor/Arnold & Porter

Attachments:

1 – Figure 1, Proposed Main Site Pre-design Soil Boring Locations
2 – Health and Safety Plan Amendment
3 – Quality Assurance Project Plan Addendum No. 2

ATTACHMENT 1

Figure 1 – Proposed Main Site Pre-Design Boring Locations

LEGEND

- PROPOSED PRE-DESIGN SOIL BORING LOCATION
- ANTICIPATED GEOTECHNICAL SOIL SAMPLE LOCATION

SOUTH TROY STREET ALLEY

SOUTH ALBANY AVENUE

27TH STREET

SOUTH WHIPPLE STREET

28TH STREET

SOUTH SACRAMENTO AVENUE

Control Point No. 3
Set Iron Rod with BLA Cap
N 1,985,133.7560
E 1,156,294.4669
Elev 599.95

Control Point No. 1
Set Iron Rod with BLA Cap
N 1,985,119.1310
E 1,156,605.9373
Elev 600.18

Control Point No. 2
Set Iron Rod with BLA Cap
N 1,984,443.6643
E 1,150,648.9109
Elev 598.03

Storm Sewer MH
Rim 592.91
I.E. N. 583.05
I.E. S. 581.65

Catch Basin
Rim 592.83
I.E. 588.53

Catch Basin
(full of water)
Rim 594.79
I.E. 589.38

Catch Basin
(full of water)
Rim 589.66

Catch Basin
Rim 596.23
I.E. 591.03

Block Building

Metal Building

24" R.C.P.

18" R.C.P.

12" R.C.P.

Bituminous

Concrete

Curb Slope

SCALE IN FEET

120' 0 120'

BASEMAP SOURCE:
BOLLINGER, LACH & ASSOCIATES, INC.
NAD 83, STATE PLANE, IL (EAST)

Figure 1
Proposed Main Site
Pre-Design Soil Boring Locations
Main Site Pre-Design Work Plan
Former Celotex Site - Chicago, Illinois

CH2MHILL

fn05c141_327757.dgn 29-Oct-2007

ATTACHMENT 2

Health and Safety Plan Amendment

HEALTH AND SAFETY PLAN
HONEYWELL – FORMER CELOTEX SITE
2800 S. SACRAMENTO AVENUE
CHICAGO, ILLINOIS

Job No.: 327757
Prepared by: William M. Berlett, Jr., CIH
Date: March 3, 2006, REV 2 October 4, 2006, REV 3 October 26, 2007

HEALTH AND SAFETY PLAN
Honeywell – Former Celotex Site
2800 S. Sacramento Avenue
Chicago, Illinois

		PHONE
Project Number:	337757	
Project Manager:	Joel Wipf/CHI	773-693-3800x253
Safety Coordinator (SC)	Jim Mallison/CHI	773-693-3800 x202
Honeywell Program H&S Manager (HSM)	Bill Berlett	773-693-3800 x316 847-770-0209 (cell)
Honeywell Remediation Manager	Chuck Geadelmann	952-830-3685
Preparation Date:	March 3, 2006, REV 3 October 26, 2007	
Expiration Date:	March 3, 2008	

APPROVALS

Project Manager:

_____
(DATE)

Honeywell Program Health and Safety Manager:

October 26, 2007_____
CIH/CSP (DATE)

Safety Coordinator

_____
(DATE)

This Health and Safety Plan is valid only for this specific project as described in Section 3.0. It is not to be used for other projects or subsequent phases of this project without the written approval of the Honeywell Program Health and Safety Manager. **A copy of this plan is to be maintained at the site at all times.**

INTRODUCTION – SITE BACKGROUND

This Health, Safety and Environment Plan (HS&E Plan) will be kept on the site during treatment plant operations and field activities and will be reviewed as necessary. The plan will be amended or revised as project activities or conditions change or when supplemental information becomes available. The plan adopts, by reference, the Standards of Practice (SOPs) in the CH2M HILL *Health, Safety, and Environmental Protection (HS&E) Program Manual*, as appropriate. In addition, this plan adopts procedures in the project Work Plan and incorporates applicable elements of Honeywell's HS&E requirements. The Safety Coordinator (SC) is to be familiar with the SOPs contained in the HS&E Program Manual and the contents of this plan.

CH2M HILL's personnel and subcontractors must sign the CH2M HILL Employee Sign-Off Form included in Attachment 1 after reading/reviewing this HS&E Plan.

SITE BACKGROUND AND DESCRIPTION OF SPECIFIC TASKS TO BE PERFORMED

The former Celotex Main Site consists of an approximately 20-acre parcel currently owned by 2600 Sacramento Corporation, and an approximately 2-acre parcel currently owned by Monarch Asphalt (Monarch). The Main Site is situated in a multi-use area that includes residential, commercial, manufacturing, governmental, and industrial establishments.

The Main Site was used for making, storing, and selling asphalt-roofing products. Former operations at the Main Site during the approximate period of 1911 to 1989 may have resulted in the release of polycyclic aromatic hydrocarbons (PAHs) to the ground and to the air. Facility closure (1989(, demolition of the Main Site (1993), and subsequent actions have been completed and it has been determined that there are no known ongoing releases associated with historical operations occurring from the Main Site.

Honeywell and Celotex signed an Administrative Order on Consent (AOC) with USEPA in 1996 for an Engineering Evaluation/Cost Analysis (EE/CA). The Final EE/CA recommends a permeable clay or soil cover be placed over the site and a residential removal be conducted, following confirmatory and predictive sampling. The March 7, 2005 USEPA Region V Enforcement Action Memorandum has determined that a the appropriate response action for the Main Site is construction of a 24-inch minimum gravel cap over the 24-acre property and remediation of PAHs in the Residential Area to 10 ppm benzo(a)pyrene equivalents. In October and November 2006, Honeywell completed an evaluation of the Cap, Fill, and Cover materials on the Main Site.

October 2007 Revision

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Following physical characterization and collection of geotechnical and/or and or analytical soil samples, the borings will be backfilled with the cuttings from the boreholes. Hydrated bentonite chips will be used to augment borehole backfill where needed.

Emergency Contacts

24-hour CH2M HILL Emergency Beeper – 720-286-4911
CH2M HILL Occupational Health Nurse: 1-800-756-1130

Medical Emergency – 911

Fire/Spill Emergency -- 911

Security & Police – 911

Local Facility Emergency Response Number:

CH2M HILL Medical Consultant
Health Resources
Dr. Jerry H. Berke, M.D., M.P.H.
600 West Cummings Park, Suite 3400
Woburn, MA 01801-6350
1-781-938-4653 (8 am to 11 pm EST)
1-800-350-4511 (after hours and on weekends)
(After hours calls will be returned within 20 minutes)

Honeywell Health, Safety & Environment Manager
Name: Bill Berlett/CHI
Phone: 773-693-3800 x 316
Cell: 847-770-0209
Fax: 773-693-3823

Environmental Compliance Coordinator (ECC)
Name: Linda Hickok/SYR
Phone: (315) 422-7250 x229

Project Health & Safety Manager (HSM)
Name: Bill Berlett/CHI
Phone: 773-693-3800 x 316
Cell: 847-770-0209
Fax: 773-693-3823

Safety Coordinator (SC)
Name: Jim Mallison/CHI
Phone: 773-693-3800 x202

Project Manager (PM)
Name: Joel Wipf/CHI
Phone: 773-693-3800x253
Cell: 773-793-0468

Regional Human Resources Department (Workers' Compensation Contact)
Name: Cindy Bauder/WDC
Phone: 703/471-6405 ext. 4243

Federal Express Dangerous Goods Shipping
Phone: 800/238-5355

CH2M HILL Emergency Number for Shipping Dangerous Goods
Phone: 800/255-3924

Worker's Compensation:
Contact Regional HR dept. to have form completed or contact Albert Jerman after hours: 303-741-5927

Automobile Accidents:
Rental: Carol Dietz/COR 303/713-2757
CH2M HILL owned vehicle:
Zurich Insurance Co. 800-987-3373

Contact the PM. Generally, the PM will contact relevant government agencies.

Facility Alarms: N/A

Evacuation Assembly Area(s): TBD by SC

Facility/Site Evacuation Route(s): TBD by SC

Hospital Name/Address: Mt. Sanai
1501 S. California
Chicago, Illinois
Phone:773-542-2000

Directions to Hospital

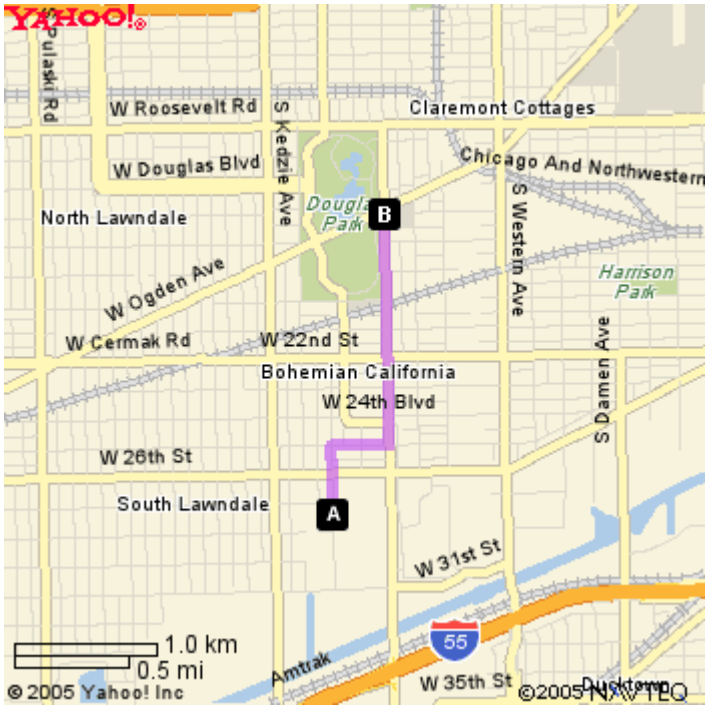
See map on following page

Celotex, Chicago, Illinois

Hospital Route Map and Directions

From the site travel north on Sacramento approximately three blocks to 25th Street. Turn right and travel east on 25th Street approximately 2 blocks to California Avenue. Turn left on California and travel north approximately one mile to the hospital, which will be on the right side of the street.

Please Note: The above directions start at the former Celotex facility address at 2800 S. Sacramento Avenue. The starting direction shall change as the location of exact site changes. Please ensure that all field workers are aware of this change. The map below is given for reference.



Change Management Form

Honeywell Project HS&E Change Management Form

*This evaluation form should be reviewed on a **continuous** basis to determine if the current site health and safety plan adequately addresses ongoing project work, and should be completed whenever new tasks are contemplated or changed conditions are encountered..*

Project Task:	Main Site subsurface investigation around site perimeter		
Project Number:	**3327757**	Project/Task Manager:	Joel Wipf/Mara Hollinbeck
Name:	**Former Celotex Facility – Chicago, Illinois**	Site Safety Coordinator:	Jim Mallison

	Evaluation Checklist	Yes	No
1.	Have the CH2MHILL staff listed in the original HSP/FSI changed?		
2.	Has a new subcontractor been added to the project?		
3.	Is any chemical or product to be used that is not listed in Attachment 2 of the plan?		
4.	Have additional tasks been added to the project, which were not originally addressed in the plan?		
5.	Have new contaminants or higher than anticipated levels of original contaminants been encountered?		
6.	Have other safety, equipment, activity or environmental hazards been encountered that are not addressed in the plan?		

If the answer is "YES" to Question 3, an HSP/FSI revision is NOT needed. Please take the following actions:

- Add the chemical to Attachment 2, and ensure employees handling the chemical are trained, and training documentation is added to Attachment 3.

If the answer is "YES" to Questions 1, 2 or 4-6, an HSP/FSI revision MAY BE NEEDED. Please contact Bill Berlett (773-693-3800 x316) directly.

This page is reserved for a Site Map.

Note: Locations of Support, Decontamination, and Exclusion Zones will vary from residential site; First aid kits will be maintained in the site workers vehicle along with the emergency phone numbers and route to the hospital.

TABLE OF CONTENTS

1 Tasks to be Performed Under this HS&E Plan

1.1 Description of Tasks

(Reference Field Project Start-up Form)

Refer to project documents (i.e., Work Plan) for detailed task information. A task hazard analysis has been performed for each task and is included below while project-specific hazard controls are provided in the next section. Tasks other than those listed below require an approved amendment or revision to this plan before tasks begin. Refer to Hazwoper Compliance Plan Section of this HS&E Plan for procedures related to "clean" tasks that do not involve hazardous waste operations and emergency response (Hazwoper).

1.1.1 Hazwoper-Regulated Tasks

The following tasks are regulated under HAZWOPER:

- Residential soil sampling using either a hand auger, power auger, or portable geoprobe drilling machine
- Subsurface investigation on the on-site cap area using hollow stem auger drilling
- Subsurface investigation using direct push drilling technology around the perimeter of the main site – collect soil samples for geotechnical and possible for SVOC analysis

1.1.2 Non-Hazwoper-Regulated Tasks

Under specific circumstances, the training and medical monitoring requirements of federal or state Hazwoper regulations are not applicable. It must be demonstrated that the tasks can be performed without the possibility of exposure in order to use non-Hazwoper-trained personnel. The following tasks are considered non-hazardous.

- Site surveys – may be done simultaneously with the soil sampling activities.
- Site visits – personnel must stay out of the Exclusion and Contamination Reduction Zones

1.1.3 Environmental-Regulated Tasks and Conditions

Project tasks and site conditions that can impact the environment and are otherwise subject to environmental regulation are included in Section 1.3. These items are also known as the environmental aspects of the project (activities that can interact with the environment). Environmental impacts relating to each task or condition are also presented in Section 1.3, which is used to evaluate the project's significant impacts and control measures specified in Hazard Controls and Safe Work Practices section of this HS&E Plan.

All personnel shall: (1) implement control measures described in Hazard Control Section; (2) obtain appropriate environmental training (e.g., Waste Management or Dangerous Goods Shipping) and (3) seek assistance from the regional Environmental Compliance Coordinator (ECC) for all environmental questions or issues.

1.2 Task Hazard Analysis

TASKS	**POTENTIAL HAZARDS** (Refer to Hazard Control Section for additional information)																											
	Aerial Lifts	Back Injury (Bending/Lifting)	Biological Hazards	Buried Utilities	Cold Stress	Confined Space Entry	Electrical	Elevated Work Areas/Falls	Entanglement	Excavations	Fires	Flying Debris/Objects	Gas Cylinders	Hand and Power Tools	Heat Stress	Heavy Equipment Exposure	Ionizing Radiation	Lockout-Tagout	Noise	Radio-Frequency Radiation	Respiratory Protection	Slips, Trips and Falls	Stairways and Ladders	Suspended Loads	Traffic Exposure	Vehicle Backing Exposure	Visible Lighting	Working Above or Near Water
Hand/power augering		X	X	X					X		X	X		X	X				X			X			X		X	
Portable Geoprobe Machine		X	X	X					X			X		X	X	X			X			X			X	X	X	
Property Surveying			X												X							X			X	X	X	
Soil sample collection		X	X											X	X							X			X		X	
Hollow Stem Auger Drilling`		X	X	X					X			X		X	X	X			X			X				X	X	
Direct Push Drilling		X	X	X	X				X			X		X	X	X			X			X			X	X	X	

1.3 Environmental Impacts

(Refer to the Hazard Control Section for control measures)

Tasks/Conditions	Impacts						
	Air Pollution	Land Pollution	Land Disposal	Noise Pollution	Water Pollution	Resource Depletion	Human Hazard
Chemical/Petroleum Storage or Transport	X	X			X		X
Waste (Haz/Non-Haz) Mgmt, Transport and Disposal		X	X		X		X

2 Hazard Controls and Safe Work Practices

This section provides safe work practices and control measures used to reduce or eliminate potential hazards. These practices and controls are to be implemented by the party in control of either the site or the particular hazard. CH2M HILL employees and subcontractors must remain aware of the hazards affecting them regardless of who is responsible for controlling the hazards. CH2M HILL employees and subcontractors who do not understand any of these provisions should contact the SC for clarification. In addition to the hazard controls specified in this section, the following are required for Honeywell projects.

HS&E Plans: CH2M HILL requires HS&E plans for all field projects and subcontractors are required to submit detailed Job Hazard Analysis for their activities as well. The HS&E plan provides a risk analysis of each task and identifies the potential hazards and control measures (including personal protective equipment and air monitoring requirements) for each task.

Job Hazard Analysis (JHAs): JHAs are required by CH2M HILL for all tasks unless the HSM specifically determines it is unnecessary. JHAs provide a step-by-step analysis of the activity being performed and identifies the equipment and control measures necessary to conduct the work safely. JHAs must be reviewed by the work team immediately prior to conducting the work. The JHAs can be a source of information for the daily safety meeting. Copies of JHAs are provided in Attachment 2. Contractors and subcontractors must develop JHAs for their site activities; these must be reviewed by the HSM prior to initiating site activities.

Safety Meetings: CH2M HILL requires that the safety coordinator conduct daily safety meetings to discuss with the field team the task to be performed that day and the potential hazards and mitigation measure. The safety meeting can be used to review the JHA with the team. The Pre Task Safety Plan (PTSP) must be developed each day prior to performing specific work tasks. Each member of the team performing the task must be included in the planning so all are aware of the task hazards and controls. A copy of a PTSP is included in Attachment 11.

Self-Assessments: Project Activity Self-Assessment Checklists are contained in Attachment 3. These checklists provide a method of verifying compliance with established safe work practices, regulations, and industry standards pertaining to hazardous activities. The checklists can be used by any CH2M HILL employee who may be exposed to a hazardous activity or by the SC when providing oversight of a subcontractor performing a hazardous activity. Self-assessments shall be completed prior to subjecting CH2M HILL staff to hazardous operations for any reason. Self-assessment checklists should be completed daily for the first week or until such time that the contractor is exhibiting appropriate work methods, then on a weekly basis thereafter.

If hazardous conditions exist or are apparent during the self-assessment, immediately notify the employees in the area and do not continue work in that area until the conditions are safe. If an imminent danger situation (immediately life threatening or would cause serious injury) exists, immediately stop work, warn all personnel in danger and notify the appropriate safety representative and the CH2M HILL SC. Non-compliance issues identified during the self-assessment shall be immediately rectified. If corrective action assistance is required, the HSM should be contacted for guidance.

Any site-specific requirements outlined in this HS&E Plan that are more stringent than those contained in the self-assessment checklists are to take precedence. The self–assessment checklists are based upon minimum regulatory compliance and some site-specific requirements may be more stringent. The self-assessment checklists, including documented corrective actions, shall be made part of the permanent project records and maintained by the SC.

Site Compliance/Audits:

In order to ensure compliance with requirements contained in the RES H&S Manual, Specification 01620, and with this HASP, audits will be conducted by a HS&E professional as follows: This project shall be audited at least once per year during the duration of the field activities.

Interventions: Honeywell requires that we intervene whenever we see someone exhibiting an unsafe behavior or working in unsafe conditions. When such a situation is observed, an intervention is performed by talking to the person about how the task could be done more safely. Safe Work Observation forms must be completed on a weekly basis, at a minimum, by the SC or FTL. Each completed form must be maintained with the HASP field documents, then transferred to project files upon the completion of the field work. A copy of a Safe Work Observation form is included in Attachment 11.

2.1 Project-Specific Hazards and Controls

2.1.1 Backing Field Vehicles

The following precautions shall be implemented to prevent incidents during backing of field vehicles:

- Avoid backing whenever possible. The SC will be responsible for determining when "backing" is allowed. If extensive backing is required, alarms that sense when an object is close by must be used.
- If backing is required, there MUST BE a spotter. If a spotter is not available, the driver MUST walk completely around the vehicle before backing up.
- When "backing" is likely to be a part of the activities, it must be discussed in the daily safety briefings to remind staff of the hazards and controls.
- Learn your vehicle's blind spots.

2.1.2 Driving in Areas with Tall Grass/Brush

Driving in areas with tall grass/brush can present a potential fire hazard if the grass/brush gets caught under and/or remains in contact with the vehicle exhaust system. Employees should exercise the following precautions:

- When stopping vehicle, ensure it is in an area where grass is not tall.
- Do not leave vehicle idling once stopped.
- When possible, try to drive through areas where grass is not tall or grass has been beaten down.
- Ensure that a fire extinguisher is available for each vehicle.
- Keep fire extinguisher readily available in passenger area of vehicle while driving.
- Keep fire extinguisher outside of vehicle upon stopping.
- Address fire hazards and controls in daily safety briefings as appropriate.

2.1.3 Drilling (Reference CH2M HILL SOP HS-35, *Drilling*)

- Only authorized personnel are permitted to operate drill rigs.
- Stay clear of areas surrounding drill rigs during every startup.
- Stay clear of the rotating augers and other rotating components of drill rigs.
- Stay as clear as possible of all hoisting operations. Loads shall not be hoisted overhead of personnel.
- Do not wear loose-fitting clothing or other items such as rings or watches that could get caught in moving parts. Long hair should have it restrained.
- If equipment becomes electrically energized, personnel shall be instructed not to touch any part of the equipment or attempt to touch any person who may be in contact with the electrical current. The

utility company or appropriate party shall be contacted to have line de-energized prior to approaching the equipment.

- Smoking around drilling operations is prohibited

2.2 General Hazards and Controls

General Practices and Housekeeping

(Reference CH2M HILL SOP HS-209, *General Practices*)

- Site work should be performed during daylight hours whenever possible. Work conducted during hours of darkness require enough illumination intensity to read a newspaper without difficulty.
- Good housekeeping must be maintained at all times in all project work areas.
- Common paths of travel should be established and kept free from the accumulation of materials.
- Keep access to aisles, exits, ladders, stairways, scaffolding, and emergency equipment free from obstructions.
- Provide slip-resistant surfaces, ropes, and/or other devices to be used.
- Specific areas should be designated for the proper storage of materials.
- Tools, equipment, materials, and supplies shall be stored in an orderly manner.
- As work progresses, scrap and unessential materials must be neatly stored or removed from the work area.
- Containers should be provided for collecting trash and other debris and shall be removed at regular intervals.
- All spills shall be quickly cleaned up. Oil and grease shall be cleaned from walking and working surfaces.

Hazard Communication

(Reference CH2M HILL SOP HS-107, *Hazard Communication)*

The SC is to perform the following:

- Complete an inventory of chemicals brought on site by CH2M HILL using Attachment 4.
- Confirm that an inventory of chemicals brought on site by CH2M HILL subcontractors is available.
- Copies of all applicable MSDSs will be placed in Attachment 5.
- Request or confirm locations of Material Safety Data Sheets (MSDSs) from the client, contractors, and subcontractors for chemicals to which CH2M HILL employees potentially are exposed.
- Before or as the chemicals arrive on site, obtain an MSDS for each hazardous chemical.
- Label chemical containers with the identity of the chemical and with hazard warnings, and store properly.
- Give employees required chemical-specific HAZCOM training using Attachment 6.
- Store all materials properly, giving consideration to compatibility, quantity limits, secondary containment, fire prevention, and environmental conditions.

2.2.3 Shipping and Transportation of Chemical Products

(Reference CH2M HILL's *Procedures for Shipping and Transporting Dangerous Goods)*

Chemicals brought to the site might be defined as hazardous materials by the U.S. Department of Transportation (DOT). All staff who ship the materials or transport them by road must receive CH2M HILL training in shipping dangerous goods. All hazardous materials that are shipped (e.g., via Federal Express) or are transported by road must be properly identified, labeled, packed, and documented by trained staff. Contact the HSM or the Equipment Coordinator for additional information.

2.2.4 Lifting

(Reference CH2M HILL SOP HS-112, *Lifting*)

- Proper lifting techniques must be used when lifting any object.
  - Plan storage and staging to minimize lifting or carrying distances.
  - Split heavy loads into smaller loads.
  - Use mechanical lifting aids whenever possible.
  - Have someone assist with the lift -- especially for heavy or awkward loads.
  - Make sure the path of travel is clear prior to the lift.

2.2.5 Fire Prevention

(Reference CH2M HILL SOP HS-208, *Fire Prevention*)

- Fire extinguishers shall be provided so that the travel distance from any work area to the nearest extinguisher is less than 100 feet. When 5 gallons or more of a flammable or combustible liquid is being used, an extinguisher must be within 50 feet. Extinguishers must:
  - be maintained in a fully charged and operable condition,
  - be visually inspected each month, and
  - undergo a maintenance check each year.
- The area in front of extinguishers must be kept clear.
- Post "Exit" signs over exiting doors, and post "Fire Extinguisher" signs over extinguisher locations.
- Combustible materials stored outside should be at least 10 feet from any building.
- Solvent waste and oily rags must be kept in a fire resistant, covered container until removed from the site.
- Flammable/combustible liquids must be kept in approved containers, and must be stored in an approved storage cabinet.

2.2.6 Stairways and Ladders

(Reference CH2M HILL SOP HS-214, *Stairways and Ladders*)

- Stairway or ladder is generally required when a break in elevation of 19 inches or greater exists.
- Personnel should avoid using both hands to carry objects while on stairways; if unavoidable, use extra precautions.
- Personnel must not use pan and skeleton metal stairs until permanent or temporary treads and landings are provided the full width and depth of each step and landing.
- Ladders must be inspected by a competent person for visible defects prior to each day's use. Defective ladders must be tagged and removed from service.
- Ladders must be used only for the purpose for which they were designed and shall not be loaded beyond their rated capacity.
- Only one person at a time shall climb on or work from an individual ladder.
- User must face the ladder when climbing; keep belt buckle between side rails
- Ladders shall not be moved, shifted, or extended while in use.
- User must use both hands to climb; use rope to raise and lower equipment and materials
- Straight and extension ladders must be tied off to prevent displacement
- Ladders that may be displaced by work activities or traffic must be secured or barricaded
- Portable ladders must extend at least 3 feet above landing surface
- Straight and extension ladders must be positioned at such an angle that the ladder base to the wall is one-fourth of the working length of the ladder
- Stepladders are to be used in the fully opened and locked position
- Users are not to stand on the top two steps of a stepladder; nor are users to sit on top or straddle a stepladder
- Fixed ladders $\geq$ 24 feet in height must be provided with fall protection devices.
- Fall protection should be considered when working from extension, straight, or fixed ladders greater than six feet from lower levels and both hands are needed to perform the work, or when reaching or working outside of the plane of ladder side rails.

2.2.7 Heat Stress

(Reference CH2M HILL SOP HS-211, *Heat and Cold Stress*)

- Drink 16 ounces of water before beginning work. Disposable cups and water maintained at 50°F to 60°F should be available. Under severe conditions, drink 1 to 2 cups every 20 minutes, for a total of 1 to 2 gallons per day. Do not use alcohol in place of water or other nonalcoholic fluids. Decrease your intake of coffee and caffeinated soft drinks during working hours.
- Acclimate yourself by slowly increasing workloads (e.g., do not begin with extremely demanding activities).
- Use cooling devices, such as cooling vests, to aid natural body ventilation. These devices add weight, so their use should be balanced against efficiency.
- Use mobile showers or hose-down facilities to reduce body temperature and cool protective clothing.
- Conduct field activities in the early morning or evening and rotate shifts of workers, if possible.

- Avoid direct sun whenever possible, which can decrease physical efficiency and increase the probability of heat stress. Take regular breaks in a cool, shaded area. Use a wide-brim hat or an umbrella when working under direct sun for extended periods.
- Provide adequate shelter/shade to protect personnel against radiant heat (sun, flames, hot metal).
- Maintain good hygiene standards by frequently changing clothing and showering.
- Observe one another for signs of heat stress. Persons who experience signs of heat syncope, heat rash, or heat cramps should consult the SC to avoid progression of heat-related illness.

SYMPTOMS AND TREATMENT OF HEAT STRESS					
	Heat Syncope	Heat Rash	Heat Cramps	Heat Exhaustion	Heat Stroke
Signs and Symptoms	Sluggishness or fainting while standing erect or immobile in heat.	Profuse tiny raised red blister-like vesicles on affected areas, along with prickling sensations during heat exposure.	Painful spasms in muscles used during work (arms, legs, or abdomen); onset during or after work hours.	Fatigue, nausea, headache, giddiness; skin clammy and moist; complexion pale, muddy, or flushed; may faint on standing; rapid thready pulse and low blood pressure; oral temperature normal or low	Red, hot, dry skin; dizziness; confusion; rapid breathing and pulse; high oral temperature.
Treatment	Remove to cooler area. Rest lying down. Increase fluid intake. Recovery usually is prompt and complete.	Use mild drying lotions and powders, and keep skin clean for drying skin and preventing infection.	Remove to cooler area. Rest lying down. Increase fluid intake.	Remove to cooler area. Rest lying down, with head in low position. Administer fluids by mouth. Seek medical attention.	Cool rapidly by soaking in cool– but not cold– water. Call ambulance, and get medical attention immediately!

Monitoring Heat Stress

These procedures should be considered when the ambient air temperature exceeds 70°F, the relative humidity is high (>50 percent), or when workers exhibit symptoms of heat stress.
The heart rate (HR) should be measured by the radial pulse for 30 seconds, as early as possible in the resting period. The HR at the beginning of the rest period should not exceed 100 beats/minute, or 20 beats/minute above resting pulse. If the HR is higher, the next work period should be shortened by 33 percent, while the length of the rest period stays the same. If the pulse rate still exceeds 100 beats/minute at the beginning of the next rest period, the work cycle should be further shortened by 33 percent. The procedure is continued until the rate is maintained below 100 beats/minute, or 20 beats/minute above resting pulse.

2.2.8 Cold Stress (Reference CH2M HILL SOP HS-09, *Heat and Cold Stress*)

- Be aware of the symptoms of cold-related disorders, and wear proper, layered clothing for the anticipated fieldwork. Appropriate rain gear is a must in cool weather.
- Consider monitoring the work conditions and adjusting the work schedule using guidelines developed by the U.S. Army (wind-chill index) and the National Safety Council (NSC).
- Wind-Chill Index is used to estimate the combined effect of wind and low air temperatures on exposed skin. The wind-chill index does not take into account the body part that is exposed, the level of activity, or the amount or type of clothing worn. For those reasons, it should only be used as a guideline to warn workers when they are in a situation that can cause cold-related illnesses.
- NSC Guidelines for Work and Warm-Up Schedules can be used with the wind-chill index to estimate work and warm-up schedules for fieldwork. The guidelines are not absolute; workers should be monitored for symptoms of cold-related illnesses. If symptoms are not observed, the work duration can be increased.

- Persons who experience initial signs of immersion foot, frostbite, hypothermia should consult the SSC/DSC to avoid progression of cold-related illness.
- Observe one another for initial signs of cold-related disorders.
- Obtain and review weather forecast – be aware of predicted weather systems along with sudden drops in temperature, increase in winds, and precipitation.

SYMPTOMS AND TREATMENT OF COLD STRESS			
	Immersion (Trench) Foot	**Frostbite**	**Hypothermia**
Signs and Symptoms	Feet discolored and painful; infection and swelling present.	Blanched, white, waxy skin, but tissue resilient; tissue cold and pale.	Shivering, apathy, sleepiness; rapid drop in body temperature; glassy stare; slow pulse; slow respiration.
Treatment	Seek medical treatment immediately.	Remove victim to a warm place. Re-warm area quickly in warm–but **not** hot–water. Have victim drink warm fluids, but **not** coffee or alcohol. Do not break blisters. Elevate the injured area, and get medical attention.	Remove victim to a warm place. Have victim drink warm fluids, but **not** coffee or alcohol. Get medical attention.

2.2.9 Compressed Gas Cylinders

- Valve caps must be in place when cylinders are transported, moved, or stored.
- Cylinder valves must be closed when cylinders are not being used and when cylinders are being moved.
- Cylinders must be secured in an upright position at all times.
- Cylinders must be shielded from welding and cutting operations and positioned to avoid being struck or knocked over; contacting electrical circuits; or exposed to extreme heat sources.
- Cylinders must be secured on a cradle, basket, or pallet when hoisted; they may not be hoisted by choker slings.

2.3 Biological Hazards and Controls

2.3.1 Snakes

Snakes typically are found in underbrush and tall grassy areas. If you encounter a snake, stay calm and look around; there may be other snakes. Turn around and walk away on the same path you used to approach the area. If a person is bitten by a snake, wash and immobilize the injured area, keeping it lower than the heart if possible. Seek medical attention immediately. **DO NOT** apply ice, cut the wound, or apply a tourniquet. Try to identify the type of snake: note color, size, patterns, and markings.

2.3.2 Poison Ivy and Poison Sumac

Poison ivy, poison oak, and poison sumac typically are found in brush or wooded areas. They are more commonly found in moist areas or along the edges of wooded areas. Become familiar with the identity of these plants. Wear protective clothing that covers exposed skin and clothes. Avoid contact with plants and the outside of protective clothing. If skin contacts a plant, wash the area with soap and water immediately. If the reaction is severe or worsens, seek medical attention.

2.3.3 Ticks

Ticks typically are in wooded areas, bushes, tall grass, and brush. Ticks are black, black and red, or brown and can be up to one-quarter inch in size. Wear tightly woven light-colored clothing with long sleeves and pant legs tucked into boots; spray **only outside** of clothing with permethrin or permanone and spray skin with only DEET; and check yourself frequently for ticks.

If bitten by a tick, grasp it at the point of attachment and carefully remove it. After removing the tick, wash your hands and disinfect and press the bite areas. Save the removed tick. Report the bite to human resources. Look for symptoms of Lyme disease or Rocky Mountain spotted fever (RMSF). Lyme: a rash might appear that looks like a bullseye with a small welt in the center. RMSF: a rash of red spots under the skin 3 to 10 days after the tick bite. In both cases, chills, fever, headache, fatigue, stiff neck, and bone pain may develop. If symptoms appear, seek medical attention.

2.3.4 Bees and Other Stinging Insects

Bee and other stinging insects may be encountered almost anywhere and may present a serious hazard, particularly to people who are allergic. Watch for and avoid nests. Keep exposed skin to a minimum. Carry a kit if you have had allergic reactions in the past, and inform the SSC and/or buddy. If a stinger is present, remove it carefully with tweezers. Wash and disinfect the wound, cover it, and apply ice. Watch for allergic reaction; seek medical attention if a reaction develops.

2.3.5 Bloodborne Pathogens

(Reference CH2M HILL SOP HS-202, *Bloodborne Pathogens*)

Exposure to bloodborne pathogens may occur when rendering first aid or CPR, or when coming into contact with landfill waste or waste streams containing potentially infectious material. Exposure controls and personal protective equipment (PPE) are required as specified in CH2M HILL SOP HS-36, *Bloodborne Pathogens*. Hepatitis B vaccination must be offered before the person participates in a task where exposure is a possibility.

2.3.6 Mosquito Bites

Due to the recent detection of the West Nile Virus in the Southeastern United States it is recommended that **preventative measures** be taken to reduce the probability of being bitten by mosquitoes whenever possible. Mosquitoes are believed to be the primary source for exposure to the West Nile Virus as well as several other types of encephalitis . The following guidelines should be followed to reduce the risk of these concerns for working in areas where mosquitoes are prevalent.

- Stay indoors at dawn, dusk, and in the early evening.
- Wear long-sleeved shirts and long pants whenever you are outdoors.
- Spray clothing with repellents containing permethrin or DEET since mosquitoes may bite through thin clothing.
- Apply insect repellent sparingly to exposed skin. An effective repellent will contain 35% DEET (N,N-diethyl-meta-toluamide). DEET in high concentrations (greater than 35%) provides no additional protection.
- Repellents may irritate the eyes and mouth, so avoid applying repellent to the hands.
- Whenever you use an insecticide or insect repellent, be sure to read and follow the manufacturer's DIRECTIONS FOR USE, as printed on the product.

Note: Vitamin B and "ultrasonic" devices are NOT effective in preventing mosquito bites.

Symptoms of Exposure to the West Nile Virus

Most infections are mild, and symptoms include fever, headache, and body aches, occasionally with skin rash and swollen lymph glands. More severe infection may be marked by headache, high fever, neck stiffness, stupor, disorientation, coma, tremors, convulsions, muscle weakness, paralysis, and, rarely, death.

The West Nile Virus incubation period is from 3-15 days.

If you have any questions or to report any suspicious symptoms, contact the project Health and Safety Manager (HSM).

2.3.7 Dog Safety

- In areas known to be frequented by feral dogs, equip each field team with dog repellant (e.g., Shock Dog Repellent or other capsaicin-based spray).
  - Read manufactures instructions.
  - Position yourself up-wind if possible before using.
  - Only use if attacked-- not just threatened.
- Avoid all dogs – both leashed and stray.
- Don't disturb a dog while it is sleeping, eating or caring for puppies.
- If a dog approaches to sniff you - stay still.
- An aggressive dog has a tight mouth, flattened ears and a direct stare.
- If you're threatened by a dog, remain calm – don't scream and avoid eye contact.
- If you say anything, speak calmly and firmly.
- Don't turn and run – try to stay still until the dog leaves, or back away slowly until the dog is out of sight or you have reached safety (e.g., vehicle).
- If attacked, retreat to vehicle or attempt to place something between you and the dog.
- If you fall or are knocked to the ground, curl into a ball with your hands over your head and neck, and protect your face.
- If bitten, immediately scrub the bite site vigorously with soap and water.
- Report the incident to the local authorities.
- Seek medical attention as soon as possible.

Additional information regarding Biological Hazards can be found in Attachment 12.

2.4 Contaminants of Concern

(Refer to Project Files for more detailed contaminant information)

Contaminant	Location and Maximum[a] Concentration (ppm)	Exposure Limit[b]	IDLH[c]	Symptoms and Effects of Exposure	PIP[d] (eV)
PAHs (Limits as Coal Tar Pitch)	GW: SB: SS:	0.2 mg/m^3	80 mg/m^3 Ca	Eye, skin and respiratory tract irritation. Prolonged contact with skin may cause dermatitis and hyperpigmentation of skin.	UK

Footnotes:

[a]Actual sample analysis data for the residential area included in this project is not available, therefore there are no data to use. Background data for the Chicagoland area indicates concentrations of PAHs approximately 1.0 mg/m^3. Specify sample-designation and media: SB (Soil Boring), A (Air), D (Drums), GW (Groundwater), L (Lagoon), TK (Tank), SS (Surface Soil), SL (Sludge), SW (Surface Water).

[b] OSHA PEL or ACGIH TLV lowest value listed.

[c] IDLH = immediately dangerous to life and health (units are the same as specified "Exposure Limit" units for that contaminant); ND = Not determined; CA = Potential occupational carcinogen.

[d] PIP = photoionization potential; NA = Not applicable; UK = Unknown.

2.5 Potential Routes of Exposure

Dermal: Contact with contaminated media. This route of exposure is minimized through proper use of PPE, as specified in Personal Protective Equipment (PPE) Section of this plan.

Inhalation: Contaminated particulates. This route of exposure is minimized through proper work controls such as avoid dust generation and/or dust suppression such as watering down the area to be augered/drilled prior to commencing with the augering/drilling and through proper respiratory protection and monitoring, as specified in Personal Protective Equipment (PPE) and Air Monitoring/Sampling Sections of this plan, respectively. It is not anticipated that respiratory protection will be needed during this field project.

Other: Inadvertent ingestion of contaminated media. This route should not present a concern if good hygiene practices are followed (e.g., wash hands and face before drinking or smoking).

3 Project Organization and Responsibilities

3.1 Client

Contact Name: Chuck Geadelmann
Phone: 952-830-3685
Facility Contact N/A
Phone: N/A

3.2 Owner

Contact Name: Sacramento Corporation and Palumbo
Phone:
Onsite Contact Name:
Phone:

3.2 CH2M HILL Employee Medical Surveillance, Training, & Drug Testing

(Reference CH2M HILL SOPs HSE-113, *Medical Surveillance*, HSE-110, *Training*, HSE-105, *Drug-Free Workplace)*

Employees assigned to this project will have the following minimum training.

- 40-hour hazardous waste operations training
- 3-day on-the-job experience
- 8-hour annual hazardous waste refresher training.
- Employees who are in an on-site supervisor role will complete 8 hours of hazardous waste supervisor training
- Drug-Free Workplace training (when drug testing is required)
  (http://www3.int.ch2m.com/intrnl/voffice/corp/health/Training_Basic_Modules/Drug1.html)
- Honeywell Program orientation
- Site-specific training/orientation

Employees designated as Safety Coordinator (SC) have completed a 12-hour safety coordinator course. The safety coordinator training course meets the requirements of 29 CFR 1910.120 for on-site supervisor training. An SC must be present during all tasks performed in exclusion or decontamination zones. The SC and additional designated employees, as necessary, will be certified in first aid and cardiopulmonary resuscitation (FA-CPR) by the American Red Cross, or equivalent. At least one FA-CPR designated employee must be present during all tasks performed in exclusion or decontamination zones. Certain tasks (e.g., confined-space entry) and contaminants (e.g., lead) may require additional training. Additional training requirements are addressed in the specific hazard sections of this plan.

Employees who perform work activities in the decontamination or exclusion zone shall be enrolled in and have a current medical clearance as required by the medical surveillance program for hazardous waste workers. Pregnant employees shall consult with the Corporate Consulting Physician prior to performing site activities and obtain a physician's statement of the employee's ability to perform hazardous activities before being assigned fieldwork.

Drug testing for the tasks identified in Section 1 is not required for CH2M HILL employees. If site conditions change and tasks are added contact the HSM to determine if drug testing will be required.

If site conditions and tasks change staff who conduct fieldwork for this project may be required to pass an initial 5-panel drug screen and an alcohol screen within two weeks prior to starting to those applicable field activities. They will be required to enroll in a random testing program for the duration of their work on Honeywell, and will be subject to post-incident and "for cause" testing.

Based on specific work activities/tasks, the drilling contractor-subcontractor personnel will be required to be drug and alcohol screened prior to conducting their field activities. Please contact the Honeywell HSPM for details and to determine if contractor/subcontractor personnel require drug testing.

Employee Name	Office	Responsibility	SC/FA-CPR
Safety Coordinator - TBD			Level C SC-HW/FA-CPR
Field Technician- TBD			Haz Waster Worker

3.3 CH2M HILL Staff Responsibilities

3.3.1 CH2M HILL Project Manager

The CH2M HILL project manager (PM) is responsible for providing adequate resources (budget and staff) for project-specific implementation of the HSE management process. The PM has overall management responsibility for the tasks listed below. The PM may delegate specific tasks to other staff, as described in sections that follow, but retains ultimate responsibility for completion of the following in accordance with this HS&E Plan:

- Incorporate standard terms and conditions, and contract-specific HSE roles and responsibilities in the contract with the client.
- Budget for the appropriate level of HSE oversight during field activities. Contact the HSM for budget requirements and guidelines.
- Manage the site and interface with third parties in a manner consistent with our contract and subcontract agreements and the applicable standard of reasonable care.
- Ensure that the overall, project-specific HS&E goals are fully and continuously implemented.
- Ensure that CH2M HILL's safety coordinator is completing all duties outlined in this HS&E Plan.
- Promoting a safety culture with onsite CH2M HILL personnel and setting the example for safe behavior.

The PM has the following additional responsibilities when subcontractors are hired:

- Incorporate standard terms and conditions, and contract-specific HSE roles and responsibilities in subcontract agreements (including flow-down requirements to lower-tier subcontractors).
- Select safe and competent subcontractors by implementing the CH2M HILL Subcontractor Management Program. This program includes the review of subcontractor pre-qualification questionnaires, training and medical monitoring records, and site-specific safety procedures prior to the start of subcontractor's field operations.
- Ensure that acceptable certificates of insurance, including CH2M HILL as named additional insured, are secured as a condition of subcontract award.
- Maintain copies of subcontracts and subcontractor certificates of insurance, bond, contractors license, training and medical monitoring records, and project-specific HSE procedures in the project file accessible to site personnel.

- Provide adequate oversight of subcontractor HSE practices per the HS&E Plan.

3.3.2 CH2M HILL Health and Safety Manager

The CH2M HILL Health and Safety manager (HSM) is responsible to:

- Support the SC's oversight of HSE practices and interfaces with onsite third parties per the HS&E Plan.
- Conduct audits, as necessary, to assess site conditions and review HSE program implementation.
- Assist the PM with HSE budget guidelines.
- Assist with program implementation as needed.

The HSM has the following additional responsibilities when subcontractors are hired:

- Ensure that subcontractor pre-qualification questionnaires are reviewed and assist as applicable in the acceptance or rejection.
- Review and accept or reject subcontractor training records and site-specific safety procedures prior to start of subcontractor's field operations.
- Support the SC's oversight of subcontractor's (and lower-tier subcontractor's) HS&E practices per the HS&E Plan.

3.3.3 Safety Coordinator

The Safety Coordinator (SC) shall be onsite for the duration of onsite work and is responsible for verifying that the project is conducted in a safe manner including the following obligations:

- Verify that this HS&E Plan is current and amended when project activities or conditions change.
- Verify that CH2M HILL site personnel and subcontractors read this HS&E Plan and sign the CH2M HILL Employee Sign-Off Form included in Attachment 1.
- Verify compliance with the requirements of this HS&E Plan, applicable contractor health and safety plan(s) and any federal, state, and local regulations.
- Review and understand contractual obligations regarding HSE roles and responsibilities.
- Manage the site and interfacing with third parties in a manner consistent with our contract/subcontract agreements and the applicable standard of reasonable care.
- Ensure that programs are effectively functioning to prevent and control hazards on the project.
- Verify that all CH2M HILL employees working in the field have the appropriate level of HSE training, medical surveillance, and drug and alcohol testing for their job duties including required specialty training (e.g., fall protection, confined space entry) identified in the Hazard Controls and Safe Work Practices Section of this HS&E Plan.
- Conduct an HSE orientation for all CH2M HILL team members prior to entering the project work areas and deliver field HSE training as needed based on project-specific hazards and activities.
- Maintain active and visible involvement using open communication with employees regarding safety issues on the project.
- Verify that safety meetings are conducted and document in the project file as needed throughout the course of the project (e.g., as tasks or hazards change).

- Attend Contractor safety meetings and ask questions about access to work areas, safety hazards, precautions and other general safety issues.
- Post required information onsite. The OSHA job-site poster is required at sites where project field offices, trailers, or equipment-storage boxes are established. Contact the HSM for posters.
- Maintain HSE records and documentation.
- Act as the project "Hazard Communication Coordinator" and perform the responsibilities outlined in the Hazard Communication section of this HS&E Plan.
- Act as the project "Emergency Response Coordinator" and perform the responsibilities outlined in the Emergency Preparedness section of this HS&E Plan.
- Verify that project HSE forms, permits and self-assessment checklists are being used as outlined in this plan.
- Ensure that the Drug Testing Hospital Kit is available onsite in the event of a serious injury involving hospital, ambulance, or paramedic care. The hospital kit must accompany the injured employee to the hospital so they will get drug tested. For additional information on the Drug Testing Hospital Kits, refer to Attachment 10.
- Verify appropriate personal protective equipment (PPE) use, availability, and training.
- Inform the HSM of any project incident, ensure that an Incident Report Form (IRF) is completed and conduct incident investigations as outlined in the Incident Reporting and Investigation section of this HS&E Plan.
- Facilitate Occupational Safety and Health Administration (OSHA) or other government agency inspections including accompanying inspector and providing all necessary documentation and follow-up.
- Report all incidents to your HS&E Project Manager and Bill Berlett (773-693-3800 x316) immediately. Depending on the type and severity of incident, we may have to report it to Honeywell within hours of occurrence. Bill Berlett will determine what needs to be reported, the timing of the reporting, and coordinate client notification so local and Corporate Honeywell personnel are appropriately notified.

The SC has the following additional responsibilities when subcontractors are hired:

- Verify that project files available to site personnel include copies of executed contracts and certificates of insurance; bond; contractors license; training, medical monitoring, and drug and alcohol testing records; and project-specific HSE procedures prior to start of subcontractor's field operations.
- Verify that ongoing training, medical monitoring, and drug and alcohol testing requirements are being met (e.g., 8-hour refresher, random drug testing programs, etc).
- Perform oversight and/or assessments of subcontractor HS&E practices per this HES plan and verify that project activity self-assessment checklists, found in Attachment 3.

3.3.4 CH2M HILL Employees

All personnel are assigned responsibility for safe and healthy operations. This concept is the foundation for involving all employees in identifying hazards and providing solutions. For any operation, individuals have full authority to stop work and initiate immediate corrective action or control. In addition, each worker has a right and responsibility to report unsafe conditions/practices. This right represents a significant facet of worker empowerment and program ownership. Through shared values and a belief that all accidents are preventable, our employees accept personal responsibility for working safely. Each employee is responsible for the following:

- Perform work in a safe manner without injury, illness or property damage.
- Perform work in accordance with company policies, and report near misses, injuries, illnesses, and unsafe conditions.
- Report all incidents, include near misses, immediately to supervisor, and file proper forms with a human resources representative. Contact the HSM to ensure client reporting procedures are met. It is important to do

incident notification immediately because, depending on the type of incident, we may be required to report to Honeywell within hours of the event.

- Report all hazardous conditions and/or hazardous activities immediately to a supervisor for corrective action.
- Intervene when an unsafe behavior and/or condition is observed.
- Complete an HSE orientation prior to being authorized to enter the project work areas.
- Inspect assigned PPE to ensure the absence of defects and proper function

3.4 CH2M HILL Subcontractors

(Reference CH2M HILL SOP HSE-215, *Contracts, Subcontracts, and HSE Management Practices*)

Subcontractor: **Drilling contractor CS Drilling**
Subcontractor Safety Representative TBD:
Subcontractor's onsite activities: Direct push drilling along the perimeter of the main site area

The subcontractors listed above are covered by this HS&E Plan and must be provided a copy of this document. However, this plan does not address hazards associated with the tasks and equipment that the subcontractor has expertise in (e.g., drilling, excavation work, electrical). Subcontractors are responsible for the health and safety procedures specific to their work, and are required to submit these procedures to CH2M HILL for review before the start of field work. Subcontractors must comply with all established health and safety plan(s) for this project. The CH2M HILL SC should verify that subcontractor employee training, medical clearance, and fit test records are current and must monitor and enforce compliance with the established HS&E Plan(s). CH2M HILL's oversight does not relieve subcontractors of their responsibility for effective implementation and compliance with the established plan(s).

CH2M HILL team members should continuously endeavor to observe subcontractors' safety performance. This endeavor should be reasonable, and include observation of hazards or unsafe practices that are both readily observable and occur in common work areas. CH2M HILL is not responsible for exhaustive observation for hazards and unsafe practices. In addition to this level of observation, the SC is responsible for confirming CH2M HILL subcontractor performance against both the subcontractor's task specific safety procedures and applicable self-assessment checklists. Self-assessment checklists, provided in Attachment 3.

HSE related communications with CH2M HILL subcontractors should be conducted as follows:

- Brief subcontractors on the provisions of this plan, and require them to sign the CH2M HILL HS&E Plan Employee Sign-Off Form, included in Attachment 1.
- Request subcontractor(s) to brief project team on the hazards and precautions related to their work.
- When apparent, non-compliance/unsafe conditions or practices are observed, notify the subcontractor safety representative and require corrective action—the subcontractor is responsible for determining and implementing necessary controls and corrective actions.
- When repeat non-compliance/unsafe conditions are observed, notify the subcontractor safety representative and stop affected work until adequate corrective measures are implemented.
- When an apparent imminent danger exists, immediately remove all affected personnel, notify subcontractor safety representative, stop affected work until adequate corrective measures are implemented, and notify the Project Manager, HSM, and SC as appropriate.
- Document all verbal HSE related communications in project field logbook, daily reports, or other records.

Subcontractors are responsible to:

- Comply with all local, state, and federal HSE standards; and project/owner HSE requirements.
- Provide a qualified subcontractor safety representative (SSR) to oversee the subcontractor activities and conduct safety inspections for their work.
- Conduct site-specific orientations for all subcontractor employees.
- Actively participate in the project HSE program and attend all required safety meetings.
- Meet training, medical monitoring, and drug and alcohol testing requirements for their staff.

- Intervene when they observe unsafe behaviors and/or conditions.
- Maintain equipment and supplies necessary to complete activities in a safe manner.
- Notify the CH2M HILL SC of any injury or incident, including near-misses, immediately and submit reports to CH2M HILL within 24 hours. Additionally, all incidents must be reported to the HSM immediately so we can meet Honeywell's incident reporting requirements.

3.5 3rd Parties

(Reference CH2M HILL SOP HSE-215, *Contracts, Subcontracts, and HSE Management Practices*)

3rd Party's Name: N/A for 11/07 project work -
Safety Representative: TBD
Onsite Activities: Shallow test pit excavations and gravel sampling

This HS&E Plan does not cover parties who do not have a contractual relationship with CH2M HILL. CH2M HILL is not responsible for the health and safety or means and methods of the contractor's work, and we must never assume such responsibility through our actions (e.g., advising on H&S issues). In addition to this plan, CH2M HILL staff should review 3rd parties' safety plans so that we remain aware of appropriate precautions that apply to us. Except in unusual situations when conducted by the HSM, CH2M HILL must never comment on or approve a 3rd party's safety procedures. Self-assessment checklists, provided in Attachment 3, are to be used by the SC to review the 3rd party's performance ONLY as it pertains to evaluating CH2M HILL employee and subcontractor exposure and safety.

HSE related communications with 3rd parties should be conducted as follows:

- Request the 3rd party to brief CH2M HILL employees and subcontractors on the precautions related to the contractor's work.
- When an apparent 3rd party's non-compliance/unsafe condition or practice poses a risk to CH2M HILL employees or subcontractors:
  - Notify the 3rd party's safety representative
  - Request that the 3rd party determine and implement corrective actions
  - If needed, stop affected CH2M HILL work until the 3rd party corrects the condition or practice. Notify the client, Project Manager, and HSM as appropriate.
- If apparent 3rd party's non-compliance/unsafe conditions or practices are observed, inform the 3rd party's safety representative. CH2M HILL's obligation is limited strictly to informing the 3rd party of the observation – the 3rd party is solely responsible for determining and implementing necessary controls and corrective actions.
- If an apparent imminent danger is observed, immediately warn the 3rd party's employee(s) in danger and notify the 3rd party's safety representative. CH2M HILL's obligation is limited strictly to immediately warning the affected individual(s) and informing the 3rd party of our observation – the 3rd party is solely responsible for determining and implementing necessary controls and corrective actions.
- Document all verbal HSE related communications in project field logbook, daily reports, or other records.

4 Personal Protective Equipment (PPE)

(Reference CH2M HILL SOP HSE-117, *Personal Protective Equipment*, HSE-121, *Respiratory Protection*)

The PPE hazard assessment performed by the HSM requires the following PPE for use during site activities. The PPE required by the table will be evaluated periodically, by the SC, to ensure the adequacy based on air monitoring results or changes to expected site conditions. The SC shall coordinate all changes with the HSM.

4.1 PPE Specifications [a]

	Level	Body	Head	Respirator [b]
Hand augering	D	Work clothes; steel-toe, leather work boots; leather work gloves; traffic vest if adjacent to roadway.	Hardhat [c] Safety glasses	None anticipated
Power augering/portable direct push drilling	D	Work clothes; steel-toe, leather work boots; leather work gloves; traffic vest if adjacent to roadway .	Hardhat [c] Safety glasses Ear protection [d]	None anticipated
Property surveying	D	Work clothes, leather work shoe	Sunglasses as needed	None required
Soil sample collection Hollow stem drilling Direct push drilling around perimeter of main site	D Modified	Work clothes, coveralls if subsurface soil is visibly impacted or if high PID levels are obtained [f] Boots: Leather work boots, may upgrade to include outer rubber boot covers based on site conditions Gloves: Inner surgical-style nitrile & outer chemical-resistant nitrile gloves.	Hardhat [c] Ear protection, as warranted [d]	None anticipated
Tasks requiring upgrade None anticipated, but could be any of the above based on actual site conditions	C	Work clothes or cotton coveralls Boots: Steel-toe leather boots OR steel-toe, leather work boots with outer rubber boot covers Gloves: Inner surgical-style nitrile & outer chemical-resistant nitrile.	Hardhat [c] Splash shield [c] Ear protection [d] Spectacle inserts	APR, full face, with P100 cartridges.

[a] Modifications are as indicated. CH2M HILL will provide PPE only to CH2M HILL employees.
[b] No facial hair that would interfere with respirator fit is permitted.
[c] Hardhat and splash-shield areas are to be determined by the SC.
[d] Ear protection should be worn when conversations cannot be held at distances of 3 feet or less without shouting.
[e] Cartridge change-out schedule will be established by the HSM and at a minimum shall be at least every 8 hours (or one work day), except if relative humidity is > 85%, or if organic vapor measurements are > midpoint of Level C range (refer to Section 5)--then at least every 4 hours. If encountered conditions are different than those anticipated in this HS&E Plan, contact the HSM.

[f] Type of coveralls to be determined by the SC based on actual site conditions.

4.2 Reasons for Upgrading or Downgrading Level of Protection

Upgrade[f]	Downgrade
• Request from individual performing tasks. • Change in work tasks that will increase contact or potential contact with hazardous materials. • Occurrence or likely occurrence of gas or vapor emission. • Known or suspected presence of dermal hazards. • Instrument action levels (Section 5) exceeded.	• New information indicating that situation is less hazardous than originally thought. • Change in site conditions that decreases the hazard. • Change in work task that will reduce contact with hazardous materials.

[f] Performing a task that requires an upgrade to a higher level of protection (e.g., Level D to Level C) is permitted only when the PPE requirements have been approved by the HSM, and an SC qualified at that level is present.

5 Air Monitoring/Sampling

(Reference CH2M HILL SOP HSE-207, *Exposure Assessment for Airborne Chemical Hazards*)

Air monitoring and sampling must be performed to verify that our employees are not be exposed to harmful levels of airborne contaminants and that airborne contaminants are not migrating into public areas. A dust monitor will be used periodically if area and/or local airborne dust levels cannot be controlled when conditions such as high wind or high traffic volume exist within the working area. Local dust suppression can be controlled by dousing the boring area with water or water spray. The use of a PID will be used initially to ensure levels of volatile organic compounds within the residential property areas are safe. PID usage after the initial determination period will be at the SC discretion based on site conditions. The initial determination period will be at the discretion of the HSM and will be based on actual site conditions and results of previous air monitoring data.

5.1 Air Monitoring Specifications

Instrument	Tasks	Action Levels[a]		Frequency [b]	Calibration
Photoionization Detector: OVM with 10.6eV lamp or equivalent	All	ND-1 ppm 1-10 ppm If readings exceed 1 ppm, benzene monitoring shall commence	Level D Level C	Initially and periodically during task	Daily
Colorimetric Tube: Drager or equivalent benzene specific 0.5/c (0.5 to 10 ppm range) with pre-tube, or equivalent	All	<0.5 ppm 0.5-1 ppm >1 ppm	Level D Level C Level B	Initially and periodically when PID >1 ppm	Not applicable
Dust Monitor: Miniram model PDM-3 or equivalent	All Direct push drilling – if dust cannot be controlled	0 -3 mg/m^3 > 3 mg/m^3	Level D Level C	Initially and periodically during tasks	Zero Daily
Noise-Level : Auditory	All	Conversations can be held at distances of 3 feet without shouting Conversations cannot be held at a distances of 3 feet without shouting	No action required Hearing protection required	Initially and periodically during task	NA

[a] Action levels apply to sustained (3 minutes or longer) breathing-zone measurements above background.
[b] The exact frequency of monitoring depends on field conditions and is to be determined by the SC; generally, every 5 to 15 minutes if acceptable; more frequently may be appropriate. Monitoring results should be recorded. Documentation should include instrument and calibration information, time, measurement results, personnel monitored, and place/location where measurement is taken (e.g., "Breathing Zone/MW-3," "at surface/SB-2," etc.).
[c] Noise monitoring shall be used at the discretion of the SC.

5.2 Calibration

Instruments will be function tested in accordance with the respective manufacturer's instructions for proper instrument use and maintenance. The instrument vendor or the CH2M HILL warehouse staff will ensure equipment has been calibrated in accordance with manufacturer's specifications.

All direct reading instruments will be function tested daily by the SC using span gas, prior to performing work activities and after the completion of the daily activities.

5.3 Air Sampling

It is not anticipated that personal air sampling will be required during this project. If site conditions change the following applies.

Air Sampling, in addition to real-time monitoring, may be required by other OSHA regulations where there may be exposure to certain contaminants. Air sampling typically is required when site contaminants include lead, cadmium, arsenic, asbestos, beryllium, hexavalent chromium, benzene, methylene chloride, vinyl chloride and certain volatile organic compounds. Air sampling methods will be NIOSH or OSHA certified and samples analyzed by a laboratory that is accredited by the American Industrial Hygiene Association (AIHA) for the compound specific method.

The HSM will develop and specify a sampling approach that includes the number and frequency of sampling events. This approach will be included in this section. The HSM shall interpret all air sampling results and modify the requirements of this HS&E Plan, based on the interpretation. Written notification of air sampling results will be provided to the CH2M HILL site employees and maintained in their HSE records.

Air sampling calibration, documentation, and chain-of-custody will be documented on forms included in Attachment 9, as applicable.

6 Decontamination

(Reference CH2M HILL SOP HSE-506, *Decontamination*)

The SC must establish and monitor the decontamination procedures and their effectiveness based on site conditions using the applicable methods below . Decontamination procedures found to be ineffective will be modified by the SC. The SC must ensure that procedures are established for disposing of materials generated on the site.

6.1 Decontamination Specifications

Personnel

- Boot wash/rinse
- Glove wash/rinse
- Outer-glove removal
- Body-suit removal
- Inner-glove removal
- Respirator removal
- Hand wash/rinse
- Face wash/rinse
- Shower ASAP
- Dispose of PPE in municipal trash, or contain for disposal
- Dispose of personnel rinse water to facility or sanitary sewer, or contain for offsite disposal

Sample Equipment

- Wash/rinse equipment
- Solvent-rinse equipment
- Contain solvent waste for offsite disposal

Heavy Equipment

- Power wash
- Steam clean
- Dispose of equipment rinse water to facility or sanitary sewer, or contain for offsite disposal

6.2 Diagram of Personnel-Decontamination Line

No eating, drinking, or smoking is permitted in contaminated areas and in exclusion or decontamination zones. The SC should establish areas for eating, drinking, and smoking.

Figure 6-1 illustrates a conceptual establishment of work zones, including the decontamination line. Work zones are to be modified by the SC to accommodate task-specific requirements.

6.3 Collection and Disposal of Decontamination Wastes

Contaminated materials, PPE and fluids shall be managed according to procedures in the Waste Management Plan in the Appendix.

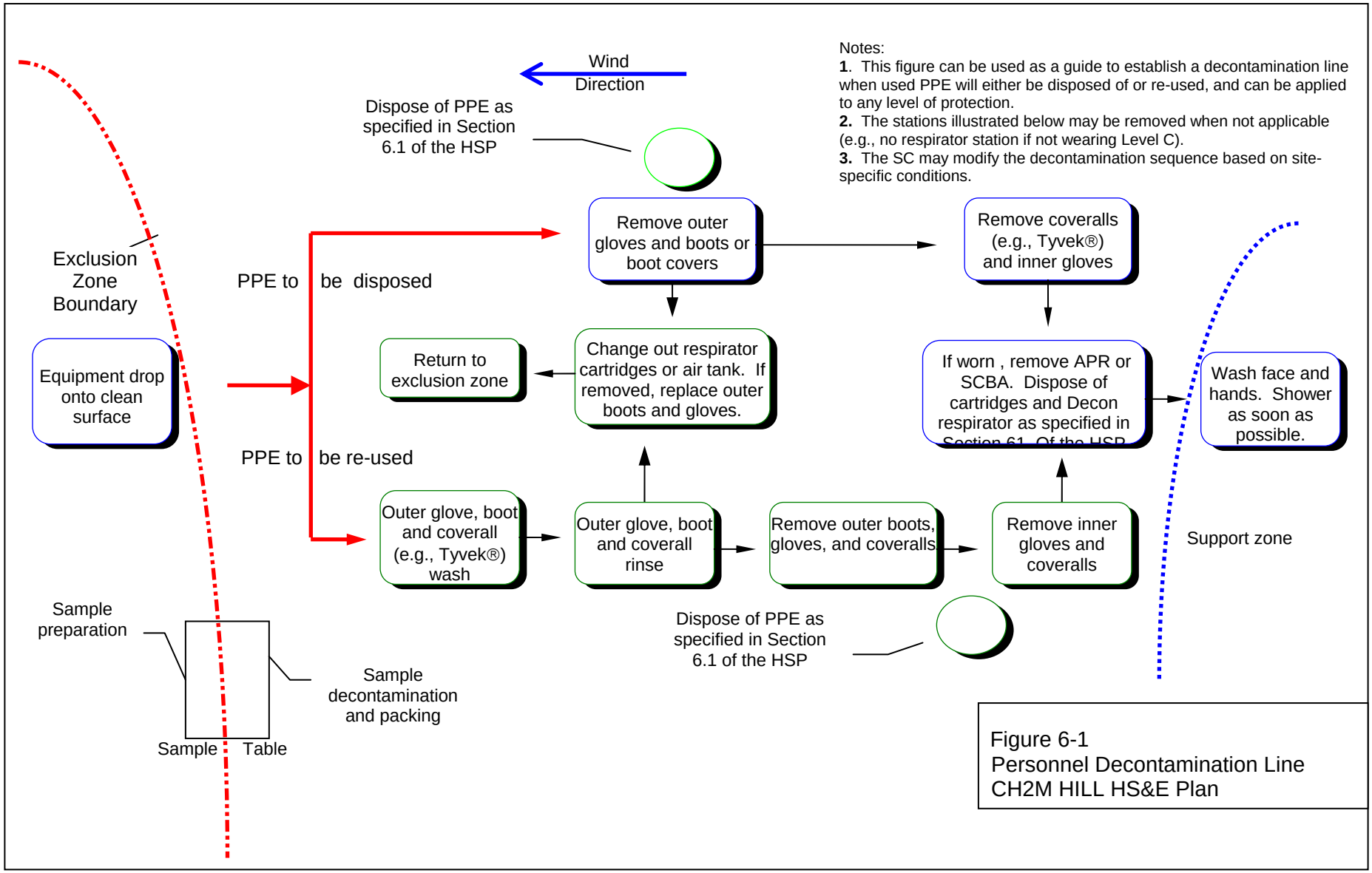


Figure 6-1
Personnel Decontamination Line
CH2M HILL HS&E Plan

7.0 Spill Containment and Notification

SPCC-Regulated Project or Facility – If the client facility is subject to a Spill Prevention, Control and Countermeasures (SPCC) Plan, a copy must be obtained and all spill prevention and response must conform to client SPCC requirements. If the client does not have an SPCC Plan and the project requires storage of more than 1,320 gallons of petroleum in 55-gallon containers or greater, a project-specific SPCC plan will be prepared.

Non-SPCC Project or Facility – Projects not subject to SPCC requirements, or storing other hazardous materials shall comply with this section. All onsite personnel shall be trained to follow the procedures described in this section.

Hydraulic pressure is utilized during the use of portable direct push drilling. Spill absorbent material shall be readily available for use should a hydraulic line break and/or leak. If this condition arises site personnel shall immediately initiate the procedures described below.

- **Equipment –** Obtain client prior approval for use of client-owned spill containment equipment. If client equipment is not available, the table below provides typical spill equipment that shall be available in the project's support zone. Consult the regional ECC and MSDS for more information.

Minimum Spill Kit Equipment List

Spill Kit
Absorbent material (kitty litter or vermiculite)
Neutralizers (for chemical spills) – Sodium Carbonate (acid spills) – Citric Acid (base spills)
Absorbent socks and pads
Safety Goggles
Protective Gloves
Tyvek Suit
Waste Containers and Labels

- **Emergency Spill Event –** The release of an unknown hazardous material is considered an emergency spill event. Implement the following procedures during an emergency spill event:

1. Evacuate the area and go upwind
2. Warn others and direct them upwind
3. Immediately contact the onsite Safety Coordinator who will contact the HSM for direction

- **Non-Emergency Spill Event –** A non-emergency spill event includes incidental releases that do not pose a significant safety or health hazard where chemical hazards are known and CH2M HILL personnel can safely implement the following procedures as a first responder:

1. Stop the source of the spill
2. Contain the spill material. If there is a chance the spill will reach nearby drains or waterways, block them off to keep the spill away
3. Contact the onsite Safety Coordinator

- **Cleanup –** Clean up the spilled material wearing the proper PPE identified in the HS&E Plan equipment table if the spilled material is less than 5 gallons and hazards are known. Spills larger than 5 gallons must be cleaned up by a qualified subcontractor since CH2M HILL personnel are not trained to implement OSHA spill response requirements. Dispose of spill debris according to the Waste Management Plan or as directed by the ECC.

- **Notification and Reporting –** All spills are considered an "incident" and shall be reported internally according to procedures in HSE-111 (Incident Reporting and Investigation SOP). Since many spills may require agency

reporting within 24 hours, it is very important that internal notification occur immediately. The following summarizes required actions:

1. ***Immediately*** notify the onsite Safety Coordinator
2. SC notifies the HSM
3. HSM notifies the Project Manager, who notifies the client
4. HSM notifies the Legal Department of a serious incident
5. HSM, ECC, and client shall determine if the incident is reportable to an agency

8.0 Site-Control Procedures

(Reference CH2M HILL SOP HSE-510, *Site Control)*

- The SC will conduct a site safety briefing (see below) before starting field activities or as tasks and site conditions change.
- Topics for briefing on site safety include general discussion of Health and Safety Plan, site-specific hazards, locations of work zones, PPE requirements, equipment, special procedures, emergencies.
- The SC will record attendance at safety briefings in a logbook and documents the topics discussed.
- Post the OSHA job-site poster in a central and conspicuous location if CH2M HILL occupies an onsite field trailer or office. Postings must be in accordance with CH2M HILL SOP HSE-116, *OSHA Postings*.
- Establish support, decontamination, and exclusion zones. Delineate with flags or cones as appropriate. Support zone should be upwind of the site. Use access control at entry and exit from each work zone.
- Establish onsite communication consisting of the following:
  - Line-of-sight and hand signals
  - Air horn
  - Two-way radio or cellular telephone if available
- Establish offsite communication.
- Establish and maintain the “buddy system.”
- Initial air monitoring is conducted by the SC in appropriate level of protection.
- The SC is to conduct periodic inspections of work practices to determine the effectiveness of this plan – refer to Sections 2 and 3. Deficiencies are to be noted, reported to the HSM, and corrected.

9.0 Hazwoper Compliance Plan

(Reference CH2M HILL SOP HSE-220, *Site-Specific Written Safety Plans)*

Certain parts of the site work are covered by state or federal Hazwoper standards and therefore require training and medical monitoring. Anticipated Hazwoper tasks (Section 1.1.1) might occur consecutively or concurrently with respect to non-Hazwoper tasks. This section outlines procedures to be followed when approved activities specified in Section 1.1.2 do not require 24- or 40-hour training. Non-Hazwoper-trained personnel also must be trained in accordance with all other state and federal OSHA requirements.

- In many cases, air sampling, in addition to real-time monitoring, must confirm that there is no exposure to gases or vapors before non-Hazwoper-trained personnel are allowed on the site, or while non-Hazwoper-trained staff are working in proximity to Hazwoper activities. Other data (e.g., soil) also must document that there is no potential for exposure. The HSM must approve the interpretation of these data. Refer to subsections 2.5 and 5.3 for contaminant data and air sampling requirements, respectively.

- When non-Hazwoper-trained personnel are at risk of exposure, the SC must post the exclusion zone and inform non-Hazwoper-trained personnel of the:
  - Nature of the existing contamination and its locations
  - Limitations of their access
  - Emergency action plan for the site
- Periodic air monitoring with direct-reading instruments conducted during regulated tasks also should be used to ensure that non-Hazwoper-trained personnel (e.g., in an adjacent area) are not exposed to airborne contaminants.
- When exposure is possible, non-Hazwoper-trained personnel must be removed from the site until it can be demonstrated that there is no longer a potential for exposure to health and safety hazards.
- Procedures for remediation treatment system start-ups are as follows: Once a treatment system begins to pump and treat contaminated media, the site is, for the purposes of applying the Hazwoper standard, considered a treatment, storage, and disposal facility (TSDF). Therefore, once the system begins operation, only Hazwoper-trained personnel (minimum of 24 hour of training) will be permitted to enter the site. All non-Hazwoper-trained personnel must not enter the TSDF area of the site.

10 Incident Reporting and Investigation

(Reference CH2M HILL SOP HSE-111, *Incident Reporting and Investigation*)

10.1 Definitions

10.1.1 Incident

An incident is an undesired event that results or could have resulted in an injury, illness, damage to assets or environment harm. The following events shall be considered incidents:

- Injury or illness to a CH2M HILL employee or CH2M HILL subcontractor employee
- Injury or illness to a third party that was caused by a CH2M HILL activity
- Hazardous substance exposure
- Damage to property or equipment
- Motor vehicle accident
- Fire or explosion
- Spill or release
- Environmental issue permit violation
- A “near-miss”

10.1.2 Near-Miss

A near-miss occurs when an intervening factor prevented an injury, damage to property, or environmental harm from occurring. Examples of near-miss situations include: a hard hat or other personal protective equipment (PPE) prevented an injury; secondary containment or emergency shutoff prevented a spill; or an alert co-worker prevented an accident. All near misses should be reported to the HSM as soon as possible, no later than 24 hours of occurrence.

10.1.3 Serious Incidents

The HSM and Legal and Insurance Department (LID) shall determine if an event should be considered as a serious incident after reviewing the initial incident facts. The general criteria for serious incidents include:

- Intervention by external emergency response organizations
- Hospitalization
- Spills and releases of hazardous substances exceeding the reportable quantity (RQ)
- Potential violations of law or regulation
- Estimated property damage in excess of $10,000

10.2 Incident Notification and Communication

All CH2M HILL and subcontractors' employees shall immediately report any incident in which they are involved to the SC. The SC shall then notify the PM and the HSM immediately thereafter. Immediate reporting is critical because there are certain types of incidents that must be reported to Honeywell within hours of occurrence. The HSM will help the team determine what needs to be reported to Honeywell, how quickly it needs to be reported to Honeywell, and who at Honeywell (local, corporate, etc) needs to be notified, etc.

Incident communications regarding serious incidents (regardless of the party involved) shall be considered sensitive in nature and must be controlled in a confidential manner. Internal communications regarding a serious incident may be conducted with affected project, regional, and Business Group staff but must be kept to a minimum. Communication should be oral whenever possible. If e-mail communications are necessary they shall be sent as confidential emails following the procedure provided in section 6.2.2 of the *Incident Reporting and Investigation* SOP (HSE-111). A LID representative shall direct all internal and external communications, including internal incident reporting, agency reporting, client notification, and incident investigations.

10.3 Incident Reporting

Injury Reporting

- If a CH2M HILL employee is injured immediately notify their group leader.
- Call the CH2M HILL Occupational Health Nurse

1-800-756-1130

- In case of emergency call 911.

The PM and/or the HSM shall ensure that the incident is entered into Honeywell's event tracking system and a CH2M HILL Incident Report Form (IRF) is completed within 24 hours of any incident. CH2M HILL's requirements can be met by entering an electronic IRF directly into the IRF database. The electronic IRF is found on the CH2M HILL HSE web page under Tools and Forms>Electronic Tools and Forms. If unable to submit an IRF electronically, the SC shall complete the hardcopy IRF provided in Attachment 7 and fax the IRF to the human resources representative (for CH2M HILL employee injuries) or the HSM (for all other incidents) for database entry. **An IRF for a serious incident shall not be initiated until directed by a representative of the LID.**

When additional or updated information becomes available that was not included in the original IRF the SC shall forward such information to the human resources representative (for CH2M HILL employee injuries) or the HSM (for all other incidents) so that the IRF may be updated. CH2M HILL staff shall comply with all applicable statutory incident reporting requirements such as those required by Federal agencies (EPA, OSHA, etc.) and local authorities (police).

10.4 Incident Investigation

Incident investigations are to be initiated and completed as soon as possible, but no later than 72 hours after the incident has occurred. The level and type of investigation will be determined by Honeywell and the HSM. **All serious incidents shall be investigated as directed by a representative of the LID.** The HSM may conduct the investigation directly or may delegate this function to the SC or other party, depending on the extent of the incident and staff availability.

When it is determined that the investigation will be lead by the SC, the Incident Investigation Guideline provided in Attachment 7 shall be followed. Typically, minor incident investigations will be completed by the HSM/ECC by including the investigation facts in the IRF. The HSM/ECC may require completion of a separate investigation report or the Root Cause Analysis Form for more extensive investigations. The HSM/ECC shall ensure that the PM and SC are made aware of investigation findings and all corrective actions, and shall verify that corrective actions are implemented to prevent further incidents.

10.5 Corrective Actions

All corrective actions recommended from the incident investigation report shall be taken to prevent recurrence of the incident. The PM or SC should hold a review meeting to discuss the incident and the corrective actions. The responsible supervisors shall be assigned to carry out the corrective actions and shall inform the SC upon successful implementation of all corrective actions.

11 Emergency Preparedness

(Reference CH2M HILL SOP HSE-106, *Emergency Planning*)

An emergency may be an injury to a worker, an explosion, evacuation, fire, or chemical release. Employees must know what to do if an emergency occurs. This requires pre-planning and communication of these plans to employees.

11.1 Pre-Emergency Planning

The SC shall perform the following pre-emergency planning tasks before starting field activities and coordinate emergency response with CH2M HILL onsite parties, the facility, and local emergency-service providers as appropriate.

- Coordinate with property owner and/or review the facility emergency and contingency plans where applicable. Have a copy readily available at the site for review and attach a copy to this HS&E Plan .
- Complete and post the Emergency Contacts form provided in Attachment 8. The SC should confirm that all information provided on the Emergency Contacts form is accurate and appropriately updated.
- Confirm and post evacuation routes, assembly areas and route to hospital.
- Determine what onsite communication equipment is available (e.g., two-way radio, air horn)
- Determine what offsite communication equipment is needed (e.g., nearest telephone, cell phone)
- Communicate emergency procedures to all field staff prior to field activities.
- Post “Exit” signs above exit doors and post “Fire Extinguisher” signs above locations of extinguishers in field trailers.
- Keep areas near exits and extinguishers free of obstructions.
- Designate one vehicle as the emergency vehicle, place hospital directions and map inside, and keep keys in ignition during field activities

- Where appropriate and acceptable to the client, inform emergency room and external emergency response organizations of anticipated types of site emergencies.
- Rehearse the emergency response plan before site activities begin, including driving the route to the hospital.
- Emergency drills should be performed periodically, but at least once per year. Upon completion of each drill, the SC shall evaluate the effectiveness of the emergency plan. Any problems or concerns identified during the evaluation must be corrected immediately.

11.2 Emergency Equipment and Supplies

The SC shall verify that appropriate emergency equipment and supplies are available, as needed, and in proper working order and mark the locations of the equipment on the site map when a map is provided. The following equipment and supplies are typically required:

- Fire Extinguishers
- First aid kit
- Bloodborne pathogen kit
- Personal eye wash station
- Potable water

11.3 Incident Response

The following actions shall be taken in the event of a fire, explosion, or chemical release:

- Shut down CH2M HILL operations and evacuate the immediate area
- Notify appropriate response personnel
- Account for personnel at the designated assembly area(s)
- Assess the need for site evacuation, and evacuate the site as warranted

11.4 Evacuation Procedures

Typical evacuation procedures include the following:

- Evacuation routes and assembly areas will be designated by the SC before work begins
- Personnel will assemble at the assembly area(s) upon hearing the emergency signal for evacuation
- The SC and a "buddy" will remain on the site after the site has been evacuated (if safe) to inform local responders of the nature and location of the incident
- The SC will account for all personnel at the assembly area
- The SC will write up a report as soon as possible after the emergency the following the guidelines provided in the Incident Report Section of the HS&E Plan.

11.5 Emergency Medical Treatment

The following actions shall be taken in the event of a medical emergency:

- Get medical attention immediately.
- Notify appropriate emergency response authorities listed on the Emergency Contacts form, as necessary.
- Prevent further injury.
- Initiate first aid and CPR where feasible.
- Make certain that the injured person is accompanied to the emergency room.

The SC will assume control during a medical emergency until the ambulance arrives or until the injured person is admitted to the emergency room. If the injured is a CH2M HILL employee, the SC or PM must accompany the injured CH2M HILL employee to the emergency room and to any follow-up appointments until the injured is released to full duty.

If there is doubt about whether medical treatment is necessary, or if the injured person is reluctant to accept medical treatment, contact the CH2M HILL medical consultant. When contacting the medical consultant, state that the situation is a CH2M HILL matter, and give your name and telephone number, the name of the injured person, the extent of the injury or exposure, and the name and location of the medical facility where the injured person was taken.

The SC shall ensure that all injuries are reported according to the guidelines in the Incident Reporting and Investigation Section of this HS&E Plan.

12 Recordkeeping

(Reference CH2M HILL SOP HSE-15, *Recordkeeping)*

The following records shall be maintained as indicated. Refer to HSE-15 for complete recordkeeping requirements.

Record	Location	Duration
Medical and Exposure Records	Medical & Training Administrator	Employment + 30 years
HS&E Plans	Project File; MTA	Project duration + 5 years
HS&E Training Records	Project File; HandS Database	Employment + 30 years
Environmental Documentation (permits, approvals, manifests)	Project File; HS&E Archive	Project duration + 5 years

13 Attachments

Attachment 1: **Employee Signoff Form – Field Safety Instructions**

Attachment 2: **Job Hazard Analysis**

Attachment 3: **Project Activity Self-Assessment Checklists**

Attachment 4: **Project-Specific Chemical Product Hazard Communication Form**

Attachment 5: **Applicable Material Safety Data Sheets**

Attachment 6: **Chemical-Specific Training Form**

Attachment 7: **Incident Report Form and Root Cause Investigation Information**

Attachment 8: **Emergency Contacts**

Attachment 9: **Project H&S Forms/Permits**

Attachment 10: **Drug Testing Hospital Kit Notice**

Attachment 11: **Behavior Based Loss Prevention Safety (BBLPS) Forms**

Attachment 12: **Biological Hazards**

Attachments for this HSP have not changed from the original Health and Safety Plan (CH2M HILL, October 2006) and therefore have not been resubmitted with this document.

ATTACHMENT 3

Quality Assurance Project Plan Addendum No. 2

QUALITY ASSURANCE PROJECT PLAN

ADDENDUM No. 2

For the
Former Celotex Site
2800 South Sacramento Avenue
Chicago, Illinois 60623

Prepared for

Honeywell International Inc.

October 2007

Prepared by

CH2MHILL

Quality Assurance Project Plan Addendum No. 2

This Quality Assurance Project Plan (QAPP) Addendum No. 2 was prepared to support the Main Site Pre-Design Work Plan for the former Celotex site located in Chicago, Illinois. This Addendum is an integral part of the QAPP prepared for the Residential Soil Sampling Work Plan (CH2M HILL, June 2006) and QAPP Addendum No. 1 for the Main Site Evaluation (CH2M HILL, October 2006) and outlines the additions or changes to the QAPP, which are specific to the Main Site Pre-Design activities. This Addendum is to be used in conjunction with the Main Site Evaluation Work Plan (CH2M HILL, October 2006) and the Main Site Pre-Design Work Plan (work plan).

Section 1.1

No changes have been made.

Section 1.2 —Project Organization

Section 1.2.1 —USEPA Region 5, Remedial Project Manager

The USEPA's remedial project manager (RPM) is responsible for the review of the project plans, including this QAPP, the project data, and results. Ms. Jena Sleboda is the RPM for the former Celotex site in Chicago, Illinois.

Sections 1.2.2 through 1.2.8

No changes have been made.

Section 1.2.9 —CH2M HILL Project Chemist

Kristina Lambert, CH2M HILL's project chemist, is responsible for tracking data and overseeing the data evaluation. Her specific responsibilities include the following:

- Scheduling the analytical laboratories
- Coordinating activities with laboratories and data validators
- Overseeing data validation and the production of results tables
- Ensuring the implementation and follow-up on corrective actions
- Evaluating data usability

Overseeing the tracking of samples and data from the time of field collection until results are entered into the data management system (DMS).

Section 1.3 —Problem Definition/Project Background

Geologic and geotechnical information on shallow subsurface soils along the perimeter of the Main Site is needed to support cover construction design activities. The potential for SVOC contamination, based on historic site operations, will also be evaluated.

Section 1.4 —Site History

No changes have been made.

Section 1.5 —Project Description and Schedule

Section 1.5.1 —Project Description

The primary objective of the proposed pre-design evaluation is to characterize the perimeter of the Main Site in support of cover construction design activities. This characterization will focus on gathering geologic and geotechnical information on the shallow subsurface soils with analytical soil sampling of semi-volatile organic compounds (SVOCs) conducted in select locations if necessary based on conditions encountered.

Section 1.5.2—Project Schedule

The field work schedule will be determined by the project manager and/or field team leader. The laboratory will make arrangements to accept deliveries as needed, take custody of the samples, and set aside production capacity. Data evaluation and reporting will follow in accordance with the Work Plan.

Section 1.6 —Data Quality Objectives and Criteria for Measurement Data

Section 1.6.1 —Data Quality Objectives

DQOs are qualitative and quantitative statements that specify the quality of data required for supporting decisions made during or after site-related activities. Project-specific DQOs are developed using the seven step process presented below (DQOs presented in Table 1):

1. **State the problem.** Describe the problem to be studied concisely.
2. **Identify the decisions.** State the decisions to be made to solve the problem.
3. **Identify inputs to the decisions.** Identify information and supporting measurements needed to make the decisions and describe the source(s) of the information.
4. **Define the boundaries of the study.** Specify conditions (that is, time periods and spatial locations).
5. **Develop a decision rule.** Define the conditions by which a decision-maker will select alternatives, usually specified as "if/then" statements (for example, if average concentration in soil is less than cleanup level, then the site achieves remedial action goals).

6. **Specify tolerable limits on decision errors.** Define in statistical terms.

7. Optimize the design for obtaining data. Evaluate the results of the previous steps and develop the most resource-efficient design for data collection.

Honeywell Celotex Data Quality Objectives
Honeywell Former Celotex Site, Chicago, Illinois

Task	Step 1: Statement of Problem	Step 2: Identify the Decision	Step 3: Inputs to Decisions	Step 4: Study Boundaries	Step 5: Decision Rules	Step 6: Limits of Decision Errors	Step 7: Optimize the Sampling Design
Main Site Pre-Design Sampling	Geologic and geotechnical information on shallow subsurface soils along the perimeter of the Main Site is needed to support cover design activities. The potential for SVOC contamination will be evaluated based on historic site activities.	Do the soils surrounding the Main Site provide adequate support for the Main Site Cover Construction? Is SVOC impact present in the Main Site perimeter subsoil? SVOC samples will be collected if PID readings are greater than 100 ppm or visual observations indicate potential impact.	Surface and/or shallow subsurface soil samples are to be collected for grain size and Atterburg limit analysis. Select samples may be collected for SVOC analysis to be determined based on field observations. Field observations will include visual evidence of stained soils and also photo ionization detector (PID) readings.	The Celotex Main Site is bounded by 27th Street to the north, Sacramento Avenue to the east, 31st Street to the south, and Albany Avenue to the west. The perimeter of the Main Site is defined as the level area surrounding the Main Site located inside of the Main Site fences. Potential constraints or obstacles for implementing the work may include the following: • Unsafe conditions • Weather (lighting, snow, ice, extreme temperatures)	If SVOCs are collected, two levels of decision rules will determine the need for further work. The first decision rule addresses the quality of the data used as input to the second decision rule. Individual analytical results will undergo an evaluation process to address usability. Precision, Accuracy, Representativeness, Completeness, and Comparability parameters will be assessed as they relate to QC Level III and Level IV data packages. If an unacceptable percentage of analytical results are deemed unusable or rejected, resampling will be necessary. For geotechnical samples, duplicates will be used for the precision evaluation and data will undergo a Level I data validation.	Decision errors are those made when a site manager chooses the wrong response action, but would have chosen another response if given perfect data. Contributing to this error are sampling design errors and measurement errors. Sampling design errors will be minimized by implementing a standard design approach at each boring. A standardized, biased sampling approach will be implemented where obtaining undisturbed soils from areas unaffected by obvious anthropogenic disturbances (surface spills, proximity to asphalt covers, coal bins, etc.) will be the goal. Measurement errors will be controlled by implementing rigorous field and laboratory quality control/quality assurance procedures that will be evaluated through strict adherence with this QAPP and established USEPA guidelines.	One sample from each boring advanced to a maximum depth of 5 feet below ground surface, every 100 feet around the perimeter of the Main Site was determined to be adequate to evaluate the shallow, unsaturated subsurface soils around the site perimeter.

Sections —1.6.2 through 1.7

No changes have been made.

Section 1.8 —Instructions for Documentation and Records

Section 1.8.1 —Field Sampling Documentation

The only change is the exclusion of the 5-point composite sample collection procedure.

Section 1.8.2— Data Reporting

The following has been added to this section:

Geotechnical data will be reported based on a laboratory standard data deliverable to include all required information to document the method performed and the results obtained.

Sections - 1.8.2.1 and 1.8.2.2

No changes made.

Section 1.8.3 — Electronic Analytical Record Format

For any SVOC analytical results, the laboratory will provide EDDs for each batch or sample delivery group following Honeywell's required EDD specifications and guidance. These specifications are included in the Data Management Plan (DMP) and given to the laboratory in the laboratory contract or statement of work

For geotechnical data, the data will be provided in a laboratory specific format.

Section 2.1—Sample Design

Section 2.1.1—Soil Sampling Summary

Refer to the sample collection SOP for detailed descriptions of the field procedures that will be used (Main Site Evaluation Work Plan, CH2M HILL October 2006). Surface and/or subsurface soil samples will be collected. An estimated 46 geotechnical samples and additional field QC samples will be collected. These samples will be analyzed for grain size (gradation) analysis, ASTM Method D422-63 and Atterberg limits (including moisture content), method ASTM D-4318. Soil borings will be selected for analysis of SVOCs by SW-846 Method 8270C, along with associated QC samples in accordance with this QAPP, if elevated PID readings and/or visually impacted soil is encountered.

Section 2.1.2—Sampling Method Requirements

Refer to the work plan for sampling procedures.

Section 2.2—Sample Handling and Custody Requirements

Section 2.2.1—Sample Handling and Preservation

Refer to section 2.2.1 of the QAPP for additional information. Further details can also be found in the work plan and sample collection SOP. Sample containers and preservation requirements specific to this field event are listed in Table 1 of the QAPP addendum. The lab performing the analysis may specify different sample containers and volumes than those listed in the table.

Sections 2.2.2 through 2.2.4.7

No changes have been made.

Section 2.3—Analytical Method Requirements

Section 2.3.1—Target Analytes and Reporting Limits

Refer to section 2.3.1 of the QAPP for additional information. The target parameter list, reporting limits and quality control limits, and comparison criteria for SVOCs can be found in Table 2-1 and 2-2 of this QAPP addendum.

The geotechnical parameters will not have reporting or control limits.

Sections - 2.3.2

Refer to Attachment A of the QAPP Addendum (CH2M HILL, October 2006).

Sections 2.3.3 through 2.4.1.1

No changes have been made.

Section 2.4.1.2—Quality Control Analysis Originated by the Field Team

Refer to section 2.4.1.2 of the QAPP for additional information. Laboratory QC requirements for each analytical method can be found in Table 1 through Table 2-2 of this QAPP addendum.

Section 2.4.2

No changes have been made.

Sections - 2.5 through 4.1

No changes have been made.

Section 4.1.1 —Data Validation Process

For this project, Level 3 and Level 4 validation will be performed on the SVOC results and Level 1 validation will be performed on the geotechnical results. These processes will follow those specified in the original QAPP.

Tables

The following table has been updated and is attached:

Table 1—Required Analytical Methods, Sample Containers, Preservation, and Holding Times

Tables 2, Target Parameter List / Reporting Limits and QC Requirements, are unchanged.

Appendixes

No change.

TABLE 1
Required Analytical Method, Sample Containers, Preservation, and Holding Times

Analyses	Analytical Method	Sample Matrix [a]	Container [b]	Qty	Preservative [c]	Holding Time [d]
Semi-volatile Organic Compounds	SW-846 3510C/3520C/8270C	W	1-L amber glass	2	Cool 4°C	7/40 days[e]
	SW-846 3550B/8270C	S	8-oz glass	1	Cool 4°C	14/40 days[f]
Grain Size Analysis	ASTM D422-63	S	8-oz glass	1	None	None
Atterburg Limits (plus moisture content)	ASTM D-4318	S	8-oz glass	1	None	None

Notes: Sample container, and volume requirements will be specified by the analytical laboratory performing the tests.
Three times the required volume should be collected for samples designated as MS/MSD samples.

[a] Sample matrix: S = surface soil, subsurface soil, sediment; W = surface water
[b] All containers will be sealed with Teflon®-lined screw caps.
[c] All samples will be stored promptly at 4°C in an insulated chest.
[d] Holding times are from the time of sample collection
[e] 7 days to extraction for water, 40 days for analysis
[f] 14 days to extraction for soil, 40 days for analysis.
[9] 6 months to extraction, 6 months to analysis, except Mercury – 28 days to extraction, 28 days to analysis...

Source: SW-846, third edition, Update III (June 1997).
ºC = degrees Centigrade; g = gram; L = liter;; oz = ounce; mL = milliliter; HNO_3 = nitric acid